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ABSTRACT

This is one of eighteen sets of individualized mathematics problems developed by the Oregon Vo-Tech Math Project. Each of these problem packages is organized around a mathematical topic and contains problems related to diverse vocations. Solutions are provided for all problems. This booklet contains a problem on metric measurement in the area of auto mechanics, tables for estimating metric measures of apothecary quantities, and a list of commonly used abbreviations. (SD)

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SE 020 641

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Individualized Learning Systems

MATHEMATICS

Metrics

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A. Problems with Solution

1. The bore of a 1971 Volkswagen is given in Motors Repair Manual as 3.37" and the stroke as 2.717". What would these dimensions be in the metric system? How many cc displacement does this model have?

   Definitions:

   cc: cubic centimeters
   cm: centimeters
   1 inch = 2.54 cm

   Solution:

   (3.37 in)(2.54 cm/in) = 8.56 cm

   (2.717 in)(2.54 cm/in) = 6.9 cm

   One cylinder displacement = $(8.56 \text{ cm})^2$ (0.7854)(6.9 cm)

   = 397 cc

   Total displacement = (397 cc/cylinder)(4 cylinders)

   = 1,588 cc

METRIC	APPROXIMATE APOTHECARY EQUIVALENTS
1000 ml.	1 quart
750 ml.	1 1/2 pints
500 ml.	1 pint
250 ml.	8 fl. oz.
200 ml.	7 fl. oz.
100 ml.	3 1/2 fl. oz.
50 ml.	1 3/4 fl. oz.
30 ml.	1 fl. oz.
15 ml.	4 fl. drams
10 ml.	2 1/2 fl. drams
8 ml.	2 fl. drams
5 ml.	1 1/4 fl. drams
4 ml.	1 fl. drams

METRIC	APPROXIMATE APOTHECARY EQUIVALENTS
3 ml.	45 minims
2 ml.	30 minims
3 ml.	15 minims
0.75 ml.	12 minims
0.6 ml.	10 minims
0.5 ml.	8 minims
0.3 ml.	5 minims
0.25 ml.	4 minims
0.2 ml.	3 minims
0.1 ml.	1 1/2 minims
0.06 ml.	1 minim
0.05 ml.	3/4 minim
0.03 ml.	1/2 minim

METRIC	APPROXIMATE APOTHECARY EQUIVALENTS
30 gm.	1 ounce
15 gm.	4 drams
10 gm.	2 1/2 drams
7.5gm.	2 drams
6 gm.	90 grains
5 gm.	75 grains
4 gm.	60 grains (1dram)
3 gm.	45 grains
2 gm.	30 grains ($\frac{1}{2}$dram)
1.5gm.	22 grains
1 gm.	15 grains
750 mg.	12 grains
600 mg.	10 grains
500 mg.	7 1/2 grains
400 mg.	6 grains
300 mg.	5 grains
250 mg.	4 grains
200 mg.	3 grains
150 mg.	2 1/2 grains
120 mg.	2 grains
100 mg.	1 1/2 grains
75 mg.	1 1/4 grains
60 mg.	1 grain
50 mg.	3/4 grain
40 mg.	2/3 grain
mg.	

METRIC	APPROXIMATE APOTHECARY EQUIVALENTS
30 mg.	1/2 grain
25 mg.	3/8 grain
20 mg.	1/3 grain
15 mg.	1/4 grain
12 mg.	1/5 grain
10 mg.	1/6 grain
8 mg.	1/8 grain
6 mg.	1/10 grain
5 mg.	1/12 grain
4 mg.	1/15 grain
3 mg.	1/20 grain
2 mg.	1/30 grain
1.5 mg.	1/40 grain
1.2 mg.	1/50 grain
1 mg.	1/60 grain
800 mcg.	1/80 grain
600 mcg.	1/100 grain
500 mcg.	1/120 grain
400 mcg.	1/150 grain
300 mcg.	1/200 grain
250 mcg.	1/250 grain
200 mcg.	1/300 grain
150 mcg.	1/400 grain
120 mcg.	1/500 grain
100 mcg.	1/600 grain

METRIC VOLUMES OF COMMON CONTAINERS

VOLUME OF FLUID CONTAINERS

Drinking glass	220 cc
Metal water pitcher	600 cc
Juice glass	120 cc
Full coffee pot	300 cc
Single cup	150 cc
Glass soup bowl	150 cc
Thermo soup bowl	150 cc
Small creamer	25 cc
Large creamer	75 cc
Metal creamer	60 cc
China creamer	60 cc
Dixie cup of icecream or sherbet	90 cc
Jello-usual serving	90 cc
Carton of milk	240 cc
Plastic drinking glass	150 cc

Term	ABBREVIATION	TERM	ABBREVIATION
abdomen	abd.	high caloric	Hi-cal
admitted	adm.	high protein	Hi-pro
after	P	high vitamin	Hi-vit
after meals	p.c.	hour	hr.
afternoon	p.m.	hour of sleep	h.s.
amount	amt.	hypodermically	(H), (h)
and	et	hypodermoclysis	clysis
apparent-appears	app.	immediately	stat
as desired	ad lib	intake and output	I & O
as much as necessary	q.s.	intramuscularly	(IM), I.M.
at hour of sleep	h.s.	intravenously	(IV), (I.V.)
at once	stat	intradermally	(ID), I.D.
auxiliary	as	incision and drainage	I & D
bathroom privileges	B.R.P.	laboratory	lab.
before	pre	laparotomy	lap.
before meals	a.c.	large	lg.
blood pressure	B.P.	lateral	lat.
both eyes	O.U.	left eye	O.S.
bowel movement	B.M.	left lower quadrant	L.L.Q
by	per	left upper quadrant	L.U.Q.
capsule	cap	liter	L.
catheter or catheterization	cath.	mixture	mixt.
Centigrade	C.	moderate	mod.
complaining of	C/O	morning	a.m.
compound	comp.	mouth	o.s.
cubic centimeter	cc.	normal saline, normal salt solution	N.S.
dead on arrival	D.O.A.	nothing by mouth	N.P.O.
Dextrose in Saline	D/S	ointment	ung, oint.
Dextrose in Water	D/W	ounce	oz.
dilute	dil.	oxygen	O
discontinue	D.C.	pound	lb., #
distilled	dist.	pre-operative	pre-op.
dram	dr.	preparation	prep.
drops	gtts.	prescription	R
elixir	elix.	quantity sufficient	q.s.
enema	E.	rectal	(R)
equal parts of each	aa	right eye	O.D.
every	q.	right lower quadrant	R.L.Q.
every day, daily	q.d.	right upper quadrant	R.U.Q.
every 2 hours	q 2 h	saturate	sat.
every 4 hours	q 4 h	shortness of breath	S.O.B.
every hour	q.h.	small	sm.
every morning	q. am	soapsuds enema	S.S.E.
every night	a.h.s.	solution	sol.
every other day	q.o.d.	specimin	spec.
extract	ext	standard units	U
examination	exam	subcutaneous	sub-q., Subc
Fahrenheit	F.	syrup	syr.
fluid	fl.	tablets	tabs.
four times a day	q.i.d.	telephone order	T.O.
grain	gr.	temperature, pulse and respiration	T.P.R.
gram	Gm.	three times a day	t.i.d.
half	ss		
height	ht.		

Terms, continued.

TERMS	ABBREVIATIONS
through	PER
times	X
tincture	tr., tinct.
two times a day	b.i.d.
vaginal	vag
verbal order	V.O.
water	H O
weight	wt.
wheelchair	WC, W/c
whenever necessary	prn
with with	c
without	s